

**Notice of Allowability**

Application No.

10/601,458

Applicant(s)

EMMER ET AL.

Examiner

Art Unit

Vikansha S. Dwivedi

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/6/2006.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
ANTHONY D. STASHICK  
PRIMARY EXAMINER

### **DETAILED ACTION**

1. This office action is in response to the amendments of 07/06/2006. Claims 1-20 are allowed.

#### ***Response to Amendment***

2. The nonstatutory double patenting rejection is hereby withdrawn in view of applicant's Terminal Disclaimer filed on 07/06/2006

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Blake Johnston on July 23, 2006.

The application has been amended as follows:

"The system of Claim 10" is being amended to - -The system of Claim 9- -

### **Reasons for Allowance**

The following is an examiner's statement of reasons for allowance: the prior art neither discloses nor makes obvious the combination set forth in the claims by not disclosing:

A cryogenic fluid delivery system comprising:

- a. a storage tank containing a supply of cryogenic liquid;

b. a pump including:

i) a pumping cylinder having an inlet in communication with said storage tank, an outlet and a pumping piston slidably positioned therein so that cryogenic liquid from the storage tank is pumped through the pumping cylinder outlet by motion of the pumping piston;

ii) an actuating cylinder having an inlet, an outlet and an actuating piston slidably positioned therein;

iii) a supplemental linear actuator;

iv) said supplemental linear actuator, actuating piston and pumping piston joined by at least one connecting rod so that the pumping piston is driven by the actuating piston and the supplemental linear actuator;

c. a heat exchanger in circuit between the pumping cylinder outlet and the actuating cylinder inlet, said heat exchanger vaporizing a-portion of the pumped cryogenic liquid so that said actuating piston is propelled by the resulting cryogenic vapor; and

d. a liquid delivery line also in communication with the pumping cylinder outlet so that a portion of the pumped cryogenic liquid may be delivered therethrough.

The closest prior art Emmer et al. (U.S. Patent number 6,581,390) does not disclose or makes obvious over relevant prior art the supplemental linear actuator as disclosed in the application. The supplemental linear actuator and both actuating and pumping piston are joined by a connecting rod and the thereby the pumping piston is driven by the actuating piston and the supplemental linear actuator.

Art Unit: 3746


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikansha S. Dwivedi whose telephone number is 571-272-7834. The examiner can normally be reached on M-F, 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on 571-272-4444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
VSD

  
ANTHONY D. STASHICK  
PRIMARY EXAMINER